

Utility Patent
Ser. No 10/033,862

In the Specification

On page 5, paragraph 3, starting at line 10, please amend as follows:

The structure preferably includes a plastic impermeable bottom layer and a top layer made of a premanufactured, bonded at the interstices, semi-rigid, high loft, open porous, inert filamentous non-woven class of material ~~[[top layer]]~~. The middle layer, when used in certain applications, consists of wood pulp, plain or treated with superabsorbent polymers, baking soda, anti-microbials or odor-counteractive agents. ~~[[The top layer can also be treated with the above to eliminate odors]]]~~ Cling enhancing substances such as ~~[[oily,]]~~ sticky, tackified adhesives, or static substances can be added to the top layer so as to enhance particle entrapment by enhancing the cling of the captured particle to the top non-woven. After treatment the top ,open, bonded, inert fiber, highloft layer can also be treated with the above dry particulate Super absorbent polymers, baking soda, antimicrobials, and odor-counteractive agents as used in the middle layer. to eliminate odors. In other embodiments such as the pouch design, the bonded highloft non-woven material is replaced by non lofty ,standard, flat, bonded ~~[[another porous material]]~~ and in still other embodiments, the bottom impervious layer is made from the same liquid permeable, open porous, bonded highloft material as the top layer, either layer or the interface, also can be treated with the above dry particulate Super absorbent polymers, baking soda, antimicrobials, and odor-counteractive agents as used in the middle layer.

On page 7 paragraph 1 starting at line 1, please amend as follows:

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The pad includes at least a top, made of a premanufactured, bonded at the interstices, high loft, open porous, inert filamentous non-woven class of material layer and a bottom impervious layer. Optionally, the pad can include a middle absorbent layer. Figure 1A shows one embodiment of a two layer particle-entrapping pad 10 for fine particles. A bonded high loft non-woven top layer 11 is secured to a plastic liquid impervious bottom layer 13. Top, more dense bonded, open filamentous layer 11 traps fine particles 12. Once the particles 12 are trapped within the non-woven, they mostly either fall to the bottom of the pad 10 or many remain suspended within the matrix of bonded interstices, open porous, filamentous, top layer 11. Figure 1B shows a two layer particle-entrapping pad for coarse particles. A less dense, more open, bonded, high loft non-woven top layer 11 is secured to a plastic liquid impervious bottom layer 13. Coarse particles 14 are trapped in the more open non-woven layer 11. In the embodiments of either figures 1A or 1B, cling enhancing additives ~~[[such as oil or surfactant]]~~ such as tackified adhesives, can increase the holding capacity of the porous, bonded, inert fiber highloft top layer 11, ~~((or static charge for additional cling can be maintained by the composition of the fibers or added~~ cling enhancing ingredients.)) Additionally, deodorants such as dry particulate baking soda can be added or pre-loaded to the sticky, cling treated ~~[[either]]~~ top layer 11 or between layers 11 and 13.

On page 8, paragraph 3, starting at line 13, please amend as follows:

A dry particulate super absorbent polymer can be incorporated ~~[[as]]~~into a middle layer 25 of the pad. This super absorbent polymer is highly absorbent and available in a variety of particle

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sizes. The various particle sizes and their absorbent characteristics are described in the manufacturer's specifications enclosed herein. [[known generically as a silica aerogel or hydrated silica, includes such compositions as silicon dioxide, silicon carbide, elemental silicon and various sodium silicate salts.]] Super absorbent polymer can be purchased from manufacturers such as GELOCK in Dayton, Ohio which sells super absorbent polymer alone or with baking soda included in a desired ratio. [[The preferred]] Another composition contains amorphous silicon dioxide, known generically as a silica aerogel or hydrated silica, includes such compositions as silicon dioxide, silicon carbide, elemental silicon and various sodium silicate salts. [[These compounds are highly absorbent and available in a variety of particle sizes. The various particle sizes and their absorption characteristics are described in the manufacturer's specifications enclosed herein. They can be readily formed into silica gels.]] Although generally considered nontoxic, silica gels are so absorbent and capable of binding tightly to wet surfaces that an inherent risk exists upon accidental ingestion. Use of the silica gels alone as a desiccant or super absorbent

On page 10, paragraph 2, starting at line 9, please amend as follows:

For entrapping coarse and fine particles, a variety of inert, bonded, non-absorbing high-loft non-wovens exists which can be used [[as the wadding and]] to retain the dry particulate, super absorbing polymer water absorbing material when the inert, nonabsorbent, fibers of the highloft are previously treated with cling agents such as tackified adhesives. Examples of this bonded, high-loft non-woven materials made of a premanufactured, bonded at the interstices, high

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loft, open porous, inert filamentous non-woven class of material include polyester, nylon, polypropylene and the like and these can be manufactured in a variety of thicknesses and densities as may be desired by both user or needed for the use. The denier for these materials can range from thick with relatively sparse thread count to thin with very high thread count. ~~[[These non-woven materials can be manufactured with a tacky material applied so as to allow cross-linking and easy integration of the absorbent material, they]]~~ During the manufacturing process ~~[[They]]~~ the fibers ~~[[can be]]~~ are sprayed with a binding agent so as to join the fibers at the points of junction. ~~[[or they can be needle-punched to integrate the fibers]]~~ Union Wadding Inc. in Pawtucket, Rhode Island and Hollinee Filtration (now Ahlstrom Inc.) in Texas, as well as many other non-woven suppliers supply the class of bonded, open porous highloft non-wovens in all types of lengths, densities, widths etc. with or without binding agents or tacky materials applied upon request.

On Page 15, please amend this page as follows:

capped with a porous top layer 41 of either high loft non-woven or the non-woven described in U.S. 4,774,907 which allows liquids to pass through. Liquids that pass through the top layer 41 are absorbed by the super absorbent polymer 44, and any excess liquids are prevented from pillage by the impervious bottom layer 42.

Another household use includes lining the bottoms of garbage pails, waste pails, commercial disposal pails, and other receptacles in order to provide protection from dripping waste and particles. Pads for this use may consist of similar construction as above or can be of a

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simpler structure, and may consist of similar construction as previously described in U.S. 4,774,907 to Yananton ~~[[or can be of a simpler structure]]~~, omitting the particles catching high-loft non-woven layer, replacing it with a standard rip-proof spun bond or spun laced non-woven polypropylene, nylon or polyester sheet or any other similarly performing nonwoven. Silica gel, baking soda, super absorbent polymers, odor-counteractive agents, etc. can be added to the middle layer. The wood pulp fibers of the middle layer also promote evaporation to negate odors.

In another embodiment, as shown in Figure 5, a pad can be developed as previously described wherein the bottom layer is the same as the non-woven top layer, i.e. there is no impervious bottom layer. These two non-woven layers 51 and 52 are attached to form kind of a pouch 50. This pouch preferably contains a middle layer 53. Middle layer 53 can include a super absorbent polymer or baking soda particles 54 or both. This pouch 50 can be used in any environment, most notably a refrigerator, to reduce odor and humidity.

The preceding examples and uses are provided for descriptive purposes solely and are not meant to limit the embodiments of the invention. Other configurations of the ~~[[portable display case]]~~ absorbent pad for entrapping small and coarse particles, retaining liquids and eliminating odors will become apparent to those of ordinary skill in the art.